

# Monitoring Relays

## Motor temperature

### Types DTA01, PTA01, DTA02, PTA02

CARLO GAVAZZI



DTA01, DTA02



PTA01, PTA02

- Motor temperature monitoring relay
- Measuring ranges: PTC according to EN 44081
- Remote and local alarm reset (DTA02, PTA02)
- Output: 8 A SPDT (PTA01/DTA01/DTA02) or SPST (DTA01) relay, normally energized
- For mounting on DIN-rail in accordance with DIN/EN 50 022 (DTA01, DTA02) or plug-in module (PTA01, PTA02)
- 22.5 mm Euronorm housing (DTA01, DTA02) or 36 mm plug-in module (PTA01, PTA02)
- LED indication for relay and power supply ON (DTA02, PTA02)
- Galvanically separated power supply

## Product Description

DTA01, DTA02, PTA01 and PTA02 are precise thermistor monitoring relays. They can be used to monitor the temperature of the coils of a motor with built-in PTC's. The alarm status of the relay can be reset by

either an external contact or an internal button (DTA02, PTA02). The test button allows the simulation of the fault condition (DTA02, PTA02). The red LED indicates the alarm status.

## Ordering Key

**DTA 01 C 230**

Housing	_____
Function	_____
Type	_____
Item number	_____
Output	_____
Power supply	_____

## Type Selection

Mounting	Output	Supply: 24 to 48 VAC/DC	Supply: 115 VAC	Supply: 230 VAC
DIN-rail	SPST	<b>DTA 01 CD 48</b>	<b>DTA 01 C 115</b>	<b>DTA 01 C 230</b>
Plug-in	SPDT	<b>PTA 01 CD 48</b>	<b>PTA 01 C 115</b>	<b>PTA 01 C 230</b>
DIN-rail	SPDT	<b>DTA 02 CD 48</b>	<b>DTA 02 C 115</b>	<b>DTA 02 C 230</b>
Plug-in	SPDT	<b>PTA 02 CD 48</b>	<b>PTA 02 C 115</b>	<b>PTA 02 C 230</b>

## Input Specifications

<b>Input (PTC)</b>	DTA01, DTA02: PTA01, PTA02:	Terminals T1, T2 Terminals 5, 6
<b>Measuring ranges</b>		
Max cold PTC resistance		1500 Ω
Alarm setpoint		3100 Ω ± 10%
Return setpoint		1650 Ω ± 10%
Short-circuit detection		0 to 10 Ω
Measurement voltage		≤ 2.5V (acc. to IEC 60034-11)
<b>Contact input</b>		
DTA02		Terminals Z1, Z2
PTA02		Terminals 8, 9
Disabled		> 10 kΩ
Enabled		< 500 Ω
Alarm reset		> 500 ms

## Output Specifications

<b>Output</b>	SPST or SPDT relay
Rated insulation voltage	250 VAC
<b>Contact ratings (AgSnO<sub>2</sub>)</b>	μ
Resistive loads	AC 1 DC 12
Small inductive loads	AC 15 DC 13
8 A @ 250 VAC	
5 A @ 24 VDC	
2.5 A @ 250 VAC	
2.5 A @ 24 VDC	
<b>Mechanical life</b>	≥ 30 x 10 <sup>6</sup> operations
<b>Electrical life</b>	≥ 10 <sup>5</sup> operations (at 8 A, 250 V, cos φ = 1)
<b>Operating frequency</b>	≤ 7200 operations/h
<b>Dielectric strength</b>	
Dielectric voltage	≥ 2 kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 μs)

## Supply Specifications

<b>Power supply</b>	Overvoltage cat. III (IEC 60664, IEC 60038)	
Rated operational voltage through terminals:		
A1, A2 (DTA01, DTA02)		
2, 10 (PTA01, PTA02)		
D48:	24 to 48 VAC/DC $\pm$ 15% 45 to 65 Hz, insulated	
115:	115 VAC $\pm$ 15% 45 to 65 Hz, insulated	
230:	230 VAC $\pm$ 15% 45 to 65 Hz, insulated	
<b>Dielectric voltage</b> (1.2/50 $\mu$ s)	<b>DC supply</b>	<b>AC supply</b>
Supply to input	2 kV	4 kV
Supply to output	4 kV	4 kV
Input to output	4 kV	4 kV
<b>Rated operational power</b>		
AC	2.5VA	
DC	1.5W	

## Mode of Operation

DTA01, DTA02, PTA01 and PTA02 monitor the resistance value of the PTC resistors connected to the terminals T1 and T2 (or 5 and 6). This value is related with their temperature (often the three coils of a motor) so to offer a prompt reaction to over temperature.

### Example 1 - DTA01 or PTA01

The relay operates as long as the measured resistance is below the rated value. The relay releases if the measured resistance (i.e. the temperature of the motor coils) exceeds the rated value.

### Example 2 - DTA02 or PTA02

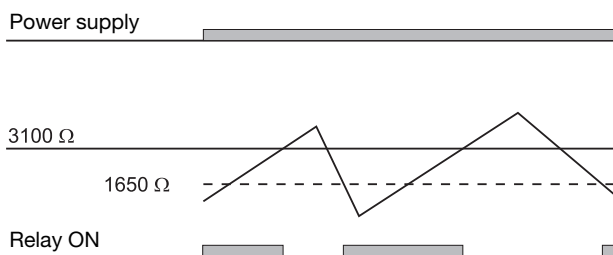
The relay operates and the yellow LED is ON as long as the measured resistance is below the rated value. The relay releases and the yellow LED is OFF if the measured resistance (i.e. the temperature of the motor coils) exceeds the rated value. Provided that the resistance has dropped below the rated value (i.e. the temperature of the motor coils has returned cold), the relay operates when the interconnection between terminals Z1, Z2 or 8, 9 is interrupted or the reset button on the front of the unit is pressed.

## General Specifications

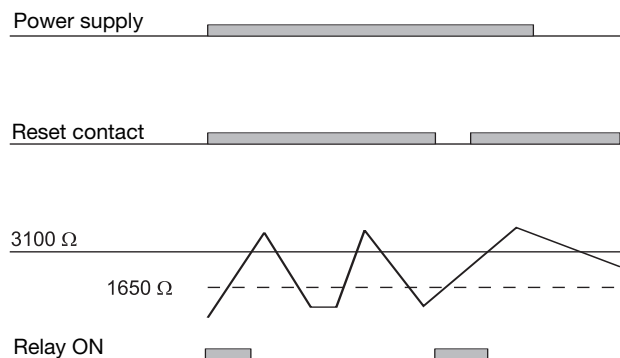
<b>Reaction time</b>	
Alarm ON delay	< 150 ms (resistance rising from -20% to +20% set value)
Reset delay	< 500 ms (resistance decreasing from +20% to -20% set value)
<b>Accuracy</b>	(15 min warm-up time)
Temperature drift	$\pm$ 1000 ppm/ $^{\circ}$ C
Repeatability	$\pm$ 0.5% on full-scale
<b>Indication for</b>	
Power supply ON	LED, green
Relay ON	LED, yellow
<b>Environment</b>	(EN 60529)
Degree of protection	IP 20
Pollution degree	3 (DTA01, DTA02), 2 (PTA01, PTA02)
Operating temperature	-20 to 60 $^{\circ}$ C, R.H. < 95%
Storage temperature	-30 to 80 $^{\circ}$ C, R.H. < 95%
<b>Housing</b>	
Dimensions DTA01, DTA02	22.5 x 80 x 99.5 mm
PTA01, PTA02	36 x 80 x 94 mm
Material	PA66 or Noryl
<b>Weight</b>	Approx. 150g
<b>Screw terminals</b>	
Tightening torque	Max. 0.5 Nm acc. to IEC 60947
<b>Product standard</b>	EN 60255-6
<b>Approvals</b>	UL, CSA
<b>CE Marking</b>	L.V. Directive 2006/95/EC EMC Directive 2004/108/EC
EMC	
Immunity	According to EN 60255-26 According to EN 61000-6-2
Emissions	According to EN 60255-26 According to EN 61000-6-3

## Operation Diagrams

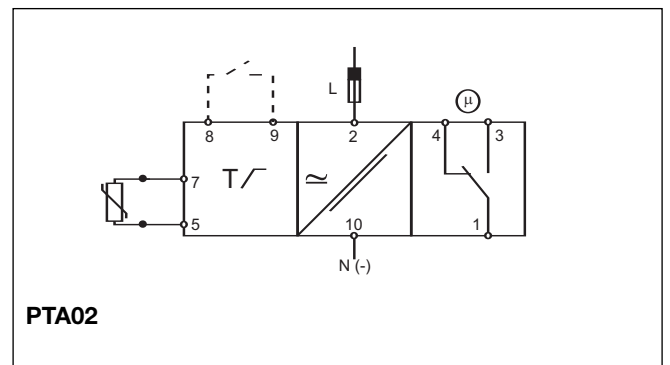
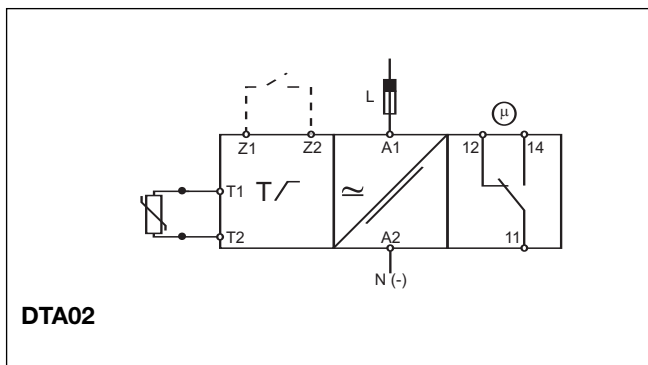
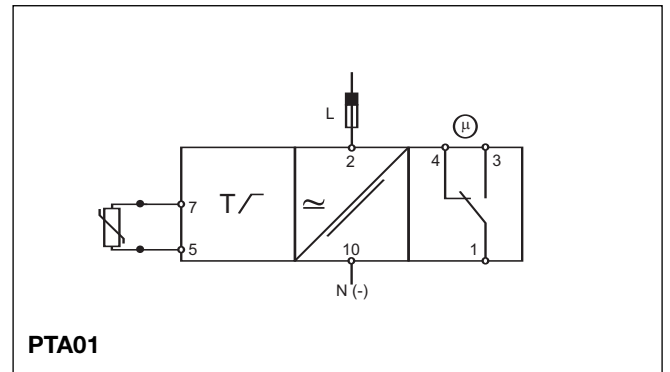
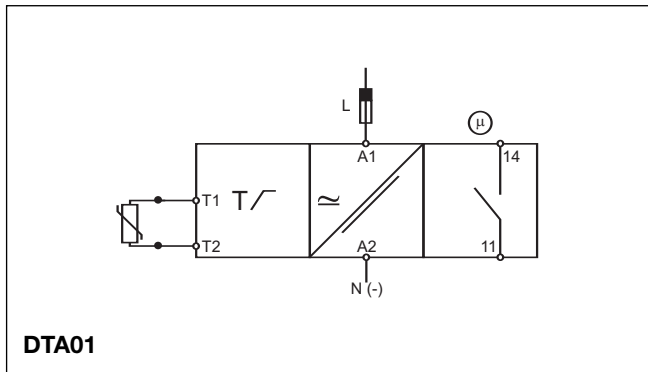
### DTA01, PTA01



### DTA02, PTA02



## Wiring Diagrams



## Dimensions

